

AUG Technical Workgroup UNCC Early Engagement Meeting

Friday 12 October 2018

at Radcliffe House, Blenheim Court, Warwick Road, Solihull B91 2AA

Attendees

Chris Shanley (Chair)	(CS)	Joint Office
Karen Visgarda (Secretary)	(KV)	Joint Office
Andy Gordon	(AG)	DNV GL
Carl Whitehouse*	(CW)	First Utility
Clive Whitehead	(CW)	DNV GL
Fiona Cottam	(FC)	Xoserve
Gareth Evans*	(GE)	Waters Wye Associates
Imran Shah*	(IS)	British Gas
John Welch	(JW)	npower
Kirsty Dudley*	(KD)	E.ON
Mark Bellman*	(MB)	ScottishPower
Mark Jones*	(MJ)	SSE
Mark Palmer*	(MP)	Orsted
Neil Cole	(NC)	Xoserve
Steve Mullingan	(SM)	Gazprom
Tony Perchard	(TP)	DNV GL

* via teleconference

Copies of all papers are available at: <http://www.gasgovernance.co.uk/uncc/121018>

1.0 Welcome

Fiona Cottam welcomed the DNV GL to the meeting and Tony Perchard (TP) then introduced himself and his colleagues and explained the purpose of the meeting was to gain early engagement of the AUG material in readiness for the first draft of the AUG Statement for publication on the 01 January 2019 and that all was presently on track for this delivery date. He added that the relevant data status update documents had already been published on the Joint Office Website for general information and that any overdue items, i.e. Shipper Theft of Gas data and Actual Temperature data, were presently being addressed and should be available in the near future.

2.0 Purpose of the meeting

2.1. Issues and Questions

TP introduced the 'AUG Technical Workgroup of UNCC – Early Engagement' presentation and overviewed the proposed agenda, which encompassed: the data status, analysis update, review of issues, proposed changes to the methodology, additional data/information and Industry changes and modifications. The complete document can be viewed via the link: <http://www.gasgovernance.co.uk/uncc/121018>

He explained that he would draw attention to specific items within the presentation where appropriate. He then started by overviewing the AUG Framework and Arrangements timeline and re-stated that currently, it was at the early engagement stage.

Data Status

He reiterated that in relation to the Supplier Theft of Gas data that this could be a risk, if it was not received in time and that Ofgem were aware of this fact, and are going to issue a formal request to Electralink/Suppliers in this regard.

Steve Mulliganie (SM) asked if the UIG Taskforce data had been factored into this data analysis and TP said that this had not been specifically included at this stage but that this could be included at a later date if required.

A lengthy general discussion then ensued about the fact that it would be advisable for the AUG, PAFA and UIG Taskforce to all share information, data and the current status with each other to ensure all the relevant data was considered in their work where appropriate. Fiona Cottam (FC) agreed and said she would investigate arranging suitable meetings with these parties.

New action 1001: Xoserve (FC) to liaise between the AUG, PAFA and UIG Taskforce to arrange joint meetings for suitable information exchange.

Kirsty Dudley (KD) also proposed that FC should raise the need for co-ordination at the Governance Workgroup as well, in order to formalise these meetings, with an agreement to be confirmed as to how the AUG would obtain this UIG Taskforce information on a regular basis. FC agreed to raise this at the Governance Workgroup and would look into a procedure for sharing the relevant data.

New Action 1002: Xoserve (FC) to raise the proposal of joint meetings with the AUG, PAFA and UIG Taskforce in order to discuss the possibility of formalising a co-ordination process under the UNC.

Theft Analysis (Issue 8)

Andy Gordon (AG) introduced the method of the analysis that had been presented at the AUG Technical Workgroup meeting and said that the supply of data had been approved in principle at the TIG (Theft Issues Group) in regards to leads, investigations and detections. He said there had been some movements forward with respect of Electralink and the data sets, and the AUG would endeavour to include these in the first draft, but that this would have to be available by the end of November at the absolute latest, to be considered.

Clive Whitehead (CW) said that if the data was delayed then it would then be considered for the second draft AUGS instead. KD said she would also try to encourage the data to be forthcoming within the specified timelines during her interactions with the TIG, but that she could not make any firm guarantees on this topic. AG said that the from the AUG perspective the system itself was ready to receive the data when it was available.

He then explained that a new approach had been adopted in relation to estimated theft levels from Smart Meters with the meter type mappings based on the serial number and presented an example from the EA LDZ as below:

ETM	303,203	11.7%
G4	1,197,367	46.1%
R5	61,128	2.4%
Smart	257,344	9.9%
U6	529,992	20.4%
Unknown	246,802	9.5%

Total	2,595,836	100.0%
-------	-----------	--------

Theft from PC2 sites (Issue 14)

A lengthy general discussion then ensued in relation to whether SMETS1 and SMETS2 meters are theft proof or not. AG said that the approach that had been taken was not to split these down any further and that he was wary of applying too many assumptions and that SMETS1 was still applicable in terms of the theft of gas protection. He also said that a refinement process was taking place in relation to Class 2 Product Sites for the hybrid population and that the approach was similar to that when dealing with Class 4, as in Smart and Traditional meters, and that the same techniques would be applied.

Improved Consumption Replacement Values (Issue 21)

TP said that a discussion had taken place as to what consumption value to use where no valid meter read existed and that previously the EUC average had been used. He said that the proposal was to use the interpolation where possible, and that an additional rule be applied when consumption values differ by <40%, which guarded against significant change in site behaviour and usage. He added that when the annual consumption was not available, that the EUC average calculation would be used instead.

Volume Conversion (Issues 25 & 29)

TP explained as detailed below, what the regulations said applied.

Type of Converter	Volume Conversion Approach
Volume (PTZ)	No conversion required
Temperature Only	Not allowed for 01B Use Site specific P&Z
No Converter	04B and above, Fixed T, Site specific P&Z Below 04B, Standard CF

A lengthy general discussion then took place surrounding the temperature only aspect and if there were any converters present or not. TP said he was not aware of any issue regarding the conversion, and FC said it was a technical question. Mark Bellman (MB) proposed that perhaps the PAFA could conduct a technical audit of the convertors and FC agreed that this could be explored.

TP then talked through the formula and explained the process relied on accurate pressure, temperature and CV and that the AUG calculated the factors based on the Seasonal Normal Weather (SNW) please see the link and slide 12 of the presentation for further detail:

<http://www.gasgovernance.co.uk/uncc/121018>

TP then enquired if the industry had any information on the pressure at the sites and specifically the regulator set pressure at the meter. SM said that the Transporters should have that information and that this was site specific. FC said there was a degree of crossover with the Performance Assurance Committee (PAC) in relation to the site correction factors work and their data request was being addressed by MAMCoP and that the MAMs were ready to assist if required. FC also suggested that additional brackets are added to the formula for CF_{press} to provide clarity.

FC asked how the formula for CFtemp related to the assumption of 12.2°C. TP said that the temperature of 15°C was the standard temperature at which CV is calculated, and 12.2°C is the assumed temperature of the meter (Tmeter in the equation).

Atmospheric Pressure Sensitivity

TP then overviewed the area of Atmospheric Pressure Sensitivity. He explained that the pressure of the gas is made up of 3 parts, the atmospheric pressure at mean sea level (Pmsl), the regulator pressure (assumed to be 21mbar for small NDMs) and a correction due to meter altitude. He went on to explain that free historical data was available via the internet and that the AUGC had investigated daily atmospheric pressure data from 2011 to the present date, for Crownhill in Plymouth as an example and that it showed no major seasonal variation and that the standard correction factor (CF) was too low by 1.45% in this particular case. TP noted that the pressure correction factor is more sensitive to atmospheric pressure variations and altitude effects at low meter pressures.

TP asked if those present felt further more detailed pressure analysis should be carried out as this would require purchasing additional atmospheric pressure data.

KD said that the matter of weather variables was being discussed within the DSC Change Management Committee in relation to the Modification 0659S - Improvements to the Composite Weather Variable and that it was also being discussed within the UIG Taskforce. She confirmed that a change proposal had already subsequently been raised, adding that an additional request could be raised, if required.

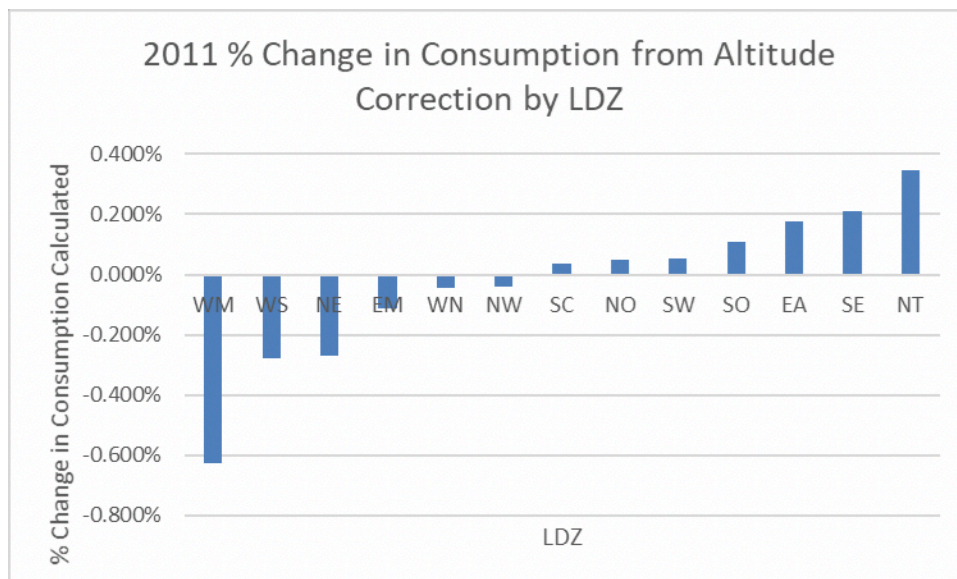
FC added that the atmospheric pressure was not on the menu for discussion within the Demand Estimation Sub-Committee (DESC) but that this could be added if there was a particular requirement. SM said that this did need to be added into the menu, especially as the Shippers were paying the UIG Taskforce to investigate this whole arena.

AG clarified that the data required by the AUGC was historic rather than something that needed collecting going forward. He then said that from a data perspective that whilst localised weather effects tend to even out when working across a wide area such as an LDZ, previous work has indicated that there can be a strong local weather effect on individual loads due to their location. FC agreed to investigate the possibility of whether the UIG Taskforce could add atmospheric data analysis into their proposals.

New Action 1003: Xoserve (FC) to investigate if atmospheric pressure data analysis could be added into the scope of the UIG Taskforce proposals.

Altitude Analysis (Pressure)

TP explained that there were different variations at the LDZs in relation to the consumption (see graph below for 2011). For 2011-15 consumption recalculated using actual altitudes resulted in an average of difference of only -0.006% across all LDZs, but as the graph shows this is due to much larger effects in some individual LDZs cancelling out in combination.

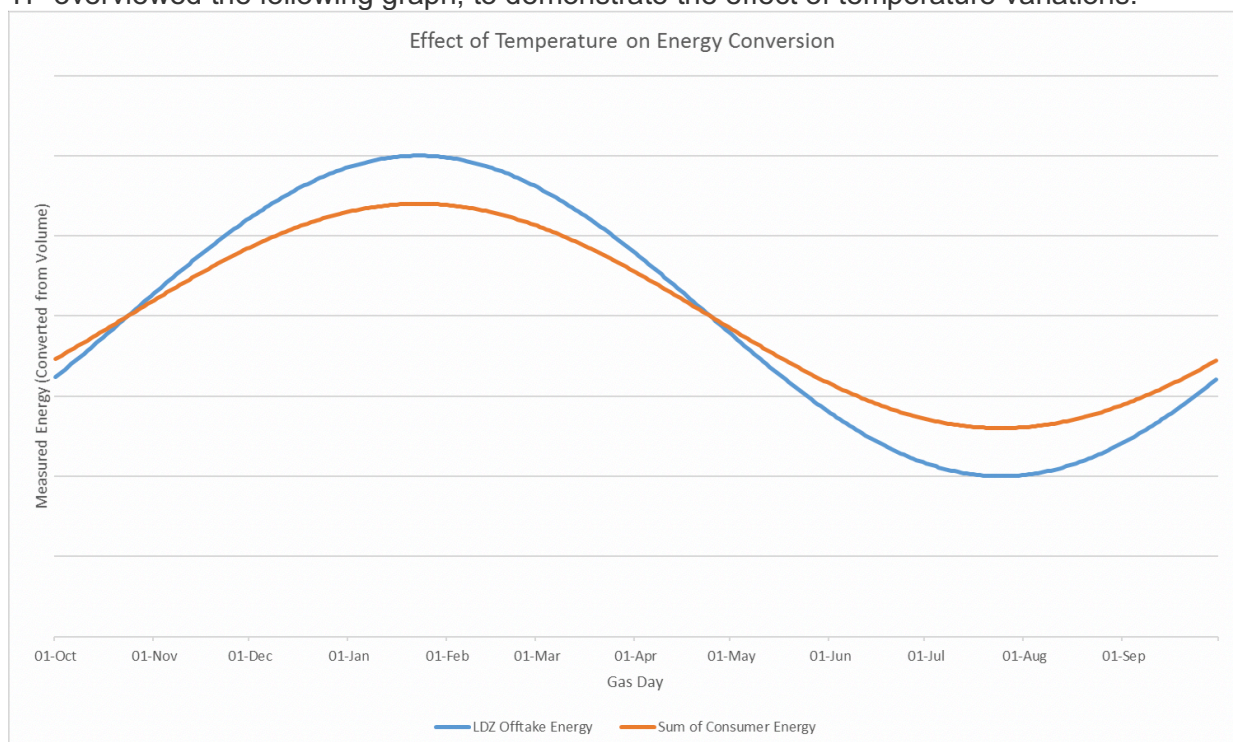


Altitude Analysis (Temperature)

TP said that the GTER only included an adjustment for pressure variation with altitude and that the temperature also varied with altitude, with the temperature decreasing by $\sim 0.65^{\circ}\text{C}$ per 100m, the CFtemp changes by $\sim 0.023\%$ per 10m change in Altitude (A) and that the change due to temperature was about 5x smaller than pressure, but in the opposite direction.

Temperature Sensitivity

TP overviewed the following graph, to demonstrate the effect of temperature variations.



TP then explained that the temperature of gas going into the LDZ Offtake meter is accurately measured so volume conversion is based on the actual temperature. However, volume conversion at consumer meters assumes 12.2°C . A short general discussion then took place, regarding AQ's, instigated by Mark Bellman (MB) in relation to the fact the AQ's were never accurate and how for annually read sites they could be based on a set of meter reads covering the duration of a whole year.

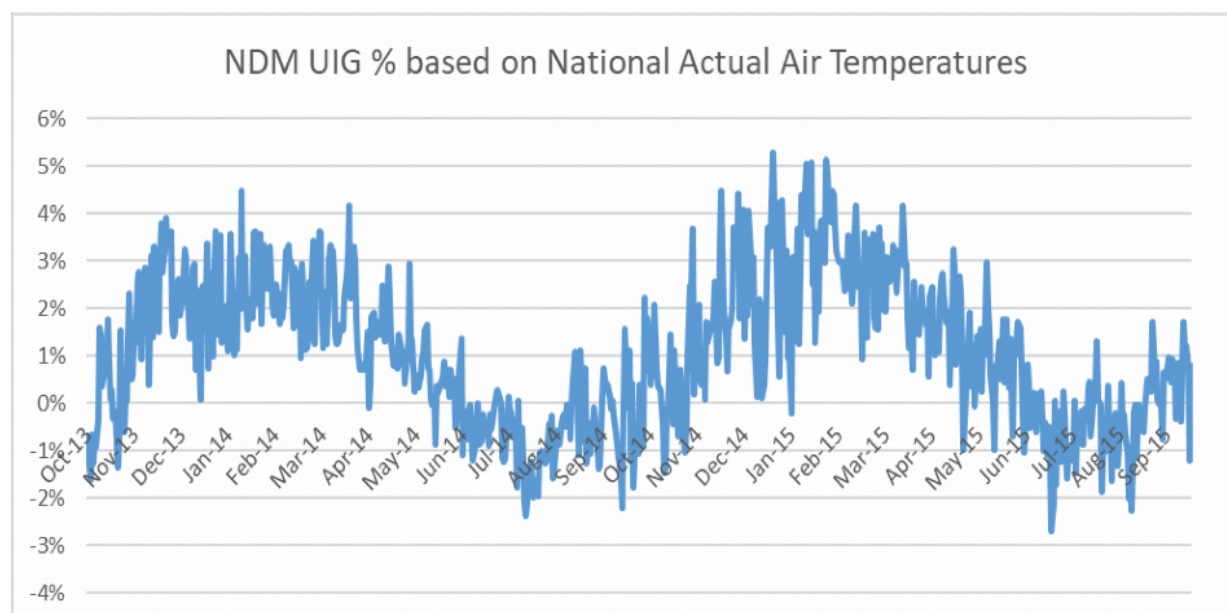
TP noted that the data from the NDM sample sites will be converted to energy using the assumption of 12.2°C. This will result in an underestimate of energy in winter and an overestimate of energy in summer which makes the sample data appear less temperature sensitive. The calculated Daily Adjustment Factors (DAFS) and Annual Load Profile (ALPS) will therefore be affected. He added that there was still some work to do regarding the NDM sample data. Both FC and SM said that the UIG Taskforce were looking at this. Then SM and MB said it would make sense for the UIG Taskforce and the AUG to have a closed face to face meeting to discuss these areas and brain storm the issue of weather sensitivity. FC confirmed she would look at arranging this meeting.

New Action 1004: Xoserve (FC) to organise a joint AUG and UIG Taskforce meeting to discuss the weather sensitivity issue and share knowledge.

SM proposed that this knowledge sharing should be on-going to assist with the AUG's education and knowledge and inform any recommendations for future work.

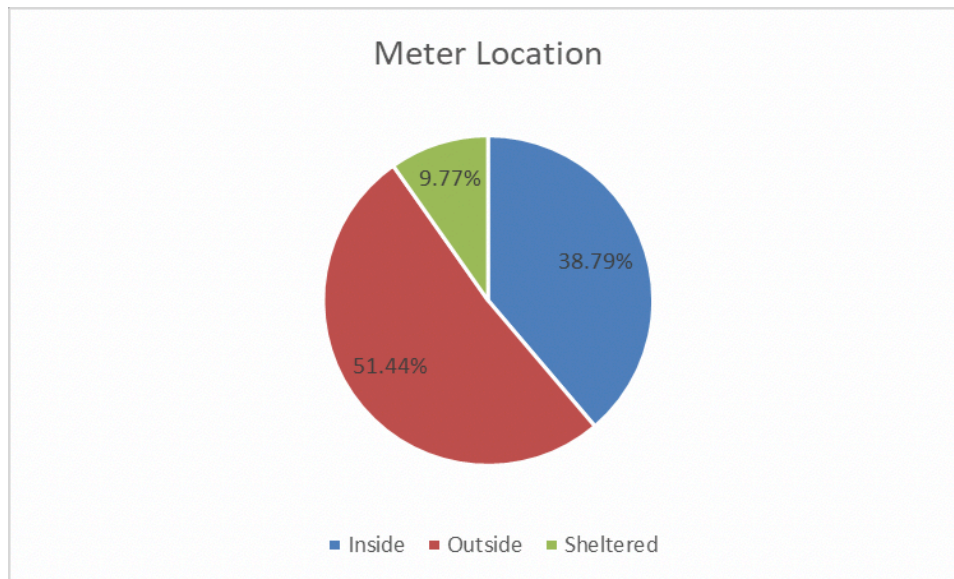
A short general discussion took place regarding the temperature sensitivity and TP said there was no robust source of meter temperature information and so the assumed average temperature of 12.2°C had been used based on a sample of real meter temperatures, adding that there was no information on how the 12.2°C had been derived. FC said that the UIG Taskforce were presently looking at a different approach for temperature in relation to NDMs.

TP then overviewed the error in the NDM energy calculation (UIG) for Gas Years 2013-14 and explained this had been based on the actual daily national average air temperatures from the National Grid website and that the average UIG % from this source for 2013 was 1.66% and the average for 2014 was 2.00%. The graph below shows the estimated UIG% based on air temperature (assumes meter temperature equals air temperature). The UIG estimate shown is the % change in the NDM allocation and is calculated by scaling the NDM allocation based on temperature.

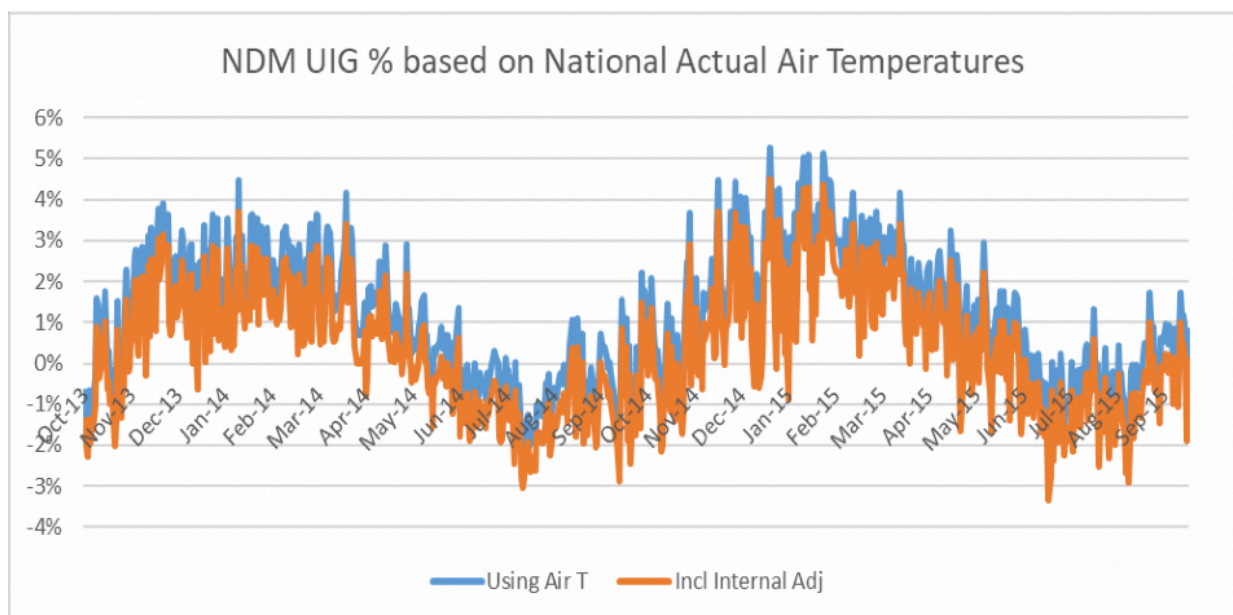


Meter Location

TP then overviewed the meter location information and explained this was available for ~ 77% of the meters and that it had been divided into 3 categories as defined below, and that sheltered referred to a location in an unheated space, garage or cellar, with the assumption that these meters would be 4°C warmer than an external meter.



TP then said that adjusting the temperature to allow for meter location had been undertaken for 50% of meters (internal and sheltered meter locations). The average UIG for 2013 was calculated as 0.94% and 2014 1.28% as detailed below:



TP added that the AUGE had now also just been given permission from Xoserve to look at the LDZ daily UIG levels, which would also be of interest.

TP said from a Ground temperature perspective the following was applicable:

Using Monthly Ground Temperatures

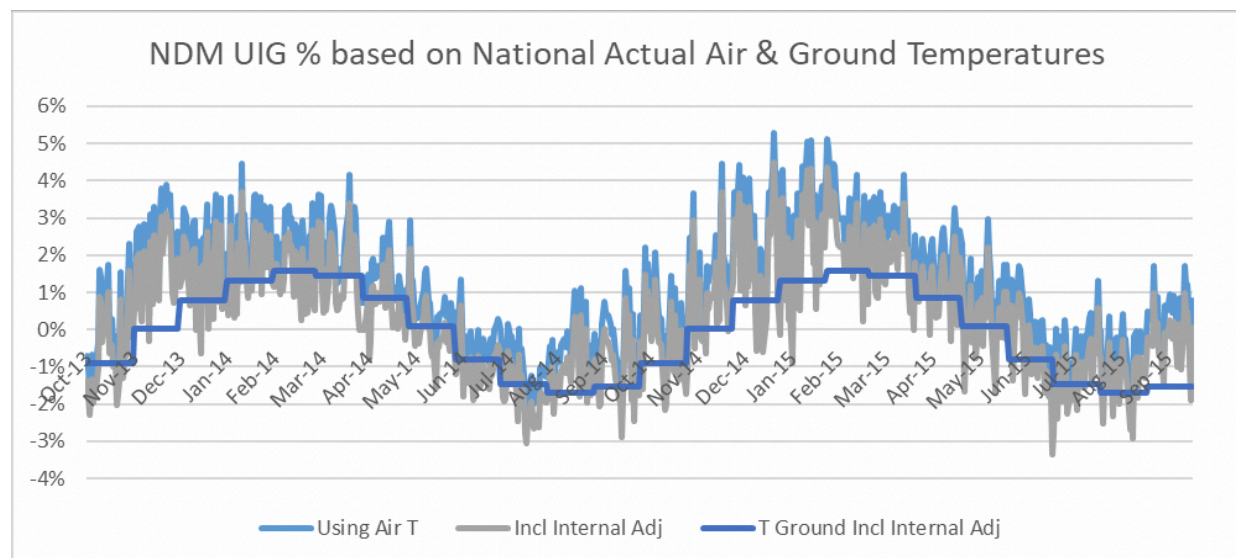
- Temperature @1.22m, avg 1931-1960 across all LDZs

Adjusting Temperature to Allow for Meter Location

- $T+4^{\circ}\text{C}$ for 50% of meters (internal and sheltered meter locations)

Average UIG

- 2013 0.52%, 2014 0.54%



TP went on to explain that there was a large amount of uncertainty around the level of meter temperatures and that the current assumption of 12.2°C was based on a sample of actual measured meter temperatures, including those located indoors.

Average Temperatures without any correction for meter location °C.

Data Type	2013 AvgT	2014 AvT
National Air Temperature	9.61	8.74
National SNT (Air)	11.39	11.37
Ground Temperature*	10.35	

SNT (Seasonal Normal Temperature)

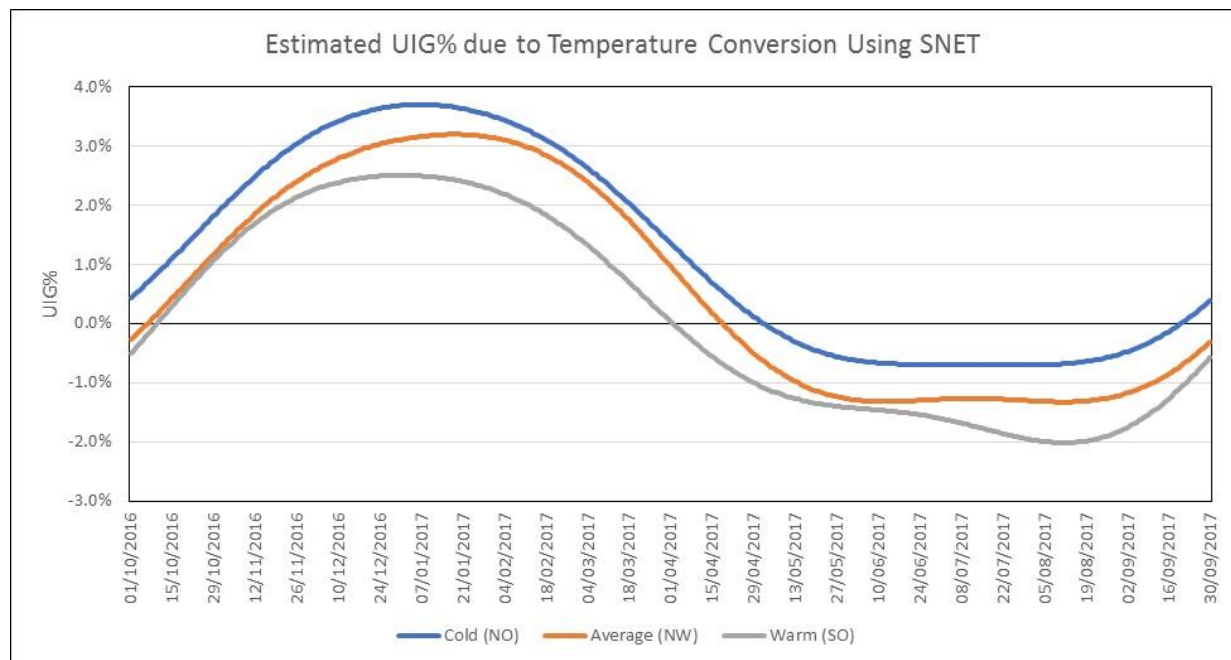
A brief general discussion then took place regarding the meter location adjustment required when calculating meter temperature, including the fact that the gas temperature was significantly higher for meters with a location of indoors.

LDZ Temperature Variation

TP explained that the Central Data Service Provider (CDSP) had provided the Seasonal Normal Effective Temperature (SNET) data for the gas year 2016, with the estimated UIG% based on the difference in temperature between SNET and 12.2°C, which was based on the total NDM allocation. He noted that this excluded Product Class 1 post-Nexus.

TP explained that the graph as detailed below, showed UIG estimates for 3 LDZs with blue, being the Northern LDZ, and Orange, being the Northwest and grey, being the Southern LDZ.

FC said that the under allocating in the Winter would be due to the gas itself being colder and then in the Summer it would over allocate due to the gas being warmer, with up to 4% of UIG in the Winter and -2% in the Summer in terms of volatility of the temperatures. Both John Welch (JW) and MB said the level of the AUG analysis was impressive and this should be shared with the UIG Taskforce to enable recommendations to be made to move the whole topic forward in an expedient manner.



TP then provided the following overview in relation to the LDZ temperature variation issue, as detailed below:

Average SNET for 2016

- Between 8.91C and 11.98C
- Average 10.75C (All LDZs)

▪ UIG % from this source across whole year

- Between 1.195% and 0.105%

▪ UIG % when temperature adjusted to allow for Internal Temperatures

- UIG % between 0.482% and -0.593%
- Average -0.062% (3 LDZs only)

	Avg SNET	UIG %	UIG % Int Temp
Cold (NO)	8.91	1.195%	0.482%
Average (NW)	10.50	0.631%	-0.074%
Warm (SO)	11.98	0.105%	-0.593%

It should be noted that these are aggregate figures across a whole year: the day-to-day pattern of positive UIG in winter and negative in summer still applies but these effects even out when the total across the full year is calculated.

Volume Converters

TP said that a high percentage of Product Class 1 and Product Class 2 meters had had converters fitted, but the converter types were not known, as per the table below:

Product Class	% with Converters
1	79.6%
2	86.8%
3	0.2%
4	0.0%

SM questioned why PC1 was not 100% and it was discussed as to whether this was a data quality issue or not. It is possible that figures shown exclude flow computers.

Key Data

TP overviewed the key data criteria as defined below:

- Information to support assumptions regarding Meter temperatures
 - “Summary Report for Domestic Gas Temperature Survey for Shippers”, 2000 – “The derivation of LDZ gas temperatures for the period 1996-2000”
- Information on presence of volume converters
 - IGEM/GM/5 provides guidance on where volume conversions systems should be used
 - Usual practice to install PTZ converters above 2.93GWh/annum
 - Details now received from CDSP
- Sample of actual meter temperatures
 - Is this data available from existing conversion systems?
 - Collect new data from sample of meters
 - Could temperature be measured and collected from NDM sample sites?

A brief general discussion then took place and it was agreed that FC would contact the Transporters with regards to the derivation of the LDZ gas temperatures for the period from 1996-2000 to gain permission for the data to be accessed. SM agreed that Gazprom would investigate the data available from the existing conversion systems. He stated that AMR devices have the capability to measure temperature, and this could help with investigation of the validity of the 12.2°C assumption. The feature is turned off by default, but can be turned on remotely and the data collected for Gazprom sites. The AUGC agreed that this data would be useful and agreed to advise on necessary sample size.

New Action 1005: Xoserve (FC) to write to the Transporters to request permission for the sharing of the report “derivation of LDZ gas temperatures for the period 1996-2000”.

New Action 1006: AUGC to advise Gazprom (SM) on sample sizes required for the collection of temperatures from AMR devices.

Incorrect Site Specific Correction Factor (CF) (Issue 26)

TP said there were still a small number of sites with suspicious correction factors, e.g. 0.02264 and even though the number was very small, the AUGC were proposing to update the calculation methodology to revert to using the standard correction factor when the value in the asset data lay outside of a sensible range. He added that the range boundaries were yet to be determined and would depend on the meter pressure information obtained.

Standard CF for 04B and above (Issue 27)

TP commented that the initial analysis of the latest meter asset data set showed approximately 10% were using the standard correction factor. The average site specific correction factor is approximately 1.0453 and was 2% higher than the standard factor, which in turn suggested a potential impact of around 100GWh.

Accuracy of Volume Converters (Issue 28)

TP overviewed the various standards and a brief general discussion took place and it was agreed that this would be discussed with the MAMCoP board for greater discussion in due course, and KD added that this would also be discussed in SPAA too.

CV Inaccuracy (Issue 30)

TP said that investigations were still taking place and so there was no update at this time regarding this specific issue.

Movements between Product Classes (Issue 31)

AG explained that the rate of movement between the Product Classes was not constant over time and so snapshots provided by Xoserve had been used, he added that the AUGÉ would make sure this type of data did not skew the overall data/results.

Permanent UIG Post-Nexus (Issue 33)

AG explained the analysis had not yet commenced and FC said that a report had already been published with the previous reports data.

New Issues Status

TP said that the initial analysis and prioritisation was still required with relation to the issues below:

- UIG from Meter Change (Issue 35)
- Isolated Supply Points with Incrementing Reads (Issue 36)
- Discrepancies in Converted Reads (Issue 37)

KD said it might be worthwhile for the AUGÉ to look at SPAA with regards to some of these issues and TP said he would investigate this.

Summary of proposed changes to methodology

TP overviewed the methodology updates as detailed below:

- Methodology Updates
 - Alternative Replacement Values in Consumption Calculation – Volume to Energy Conversion*
- Areas Under Investigation – Theft
 - Theft from PC2 Sites (ex DME/DMV)
 - UG from Meter Change
 - Incrementing Reads for Isolated Supply Point
 - Discrepancies between Converted & Unconverted Meter Reads

**(methodology to be updated but change in factors subject to data availability)*

3.0 AUGÉ Progress Update

Not discussed in this meeting.

4.0 AUGÉ Data Request Summary

Not discussed in this meeting.

5.0 Issue Status

Not discussed in this meeting.

It was agreed this item should be a standard agenda item.

6.0 Recommendations

Not specifically discussed in this meeting.

It was agreed this item should be a standard agenda item.

7.0 Next Steps

Chris Shanley (CS) said that as stated by TP that the AUGs were to publish the draft AUG statement on 01 January 2019.

CS said the next meeting would be held on Friday 11 January 2019 at Radcliffe House, Solihull.

8.0 Any Other Business

None raised.

9.0 Diary Planning

Further details of planned meetings are available at: <https://www.gasgovernance.co.uk/events-calendar/month>

Workgroup meetings will take place as follows:

Time / Date	Venue	AUGS Statement
10:30 Friday 11 January 2019	Radcliffe House, Blenheim Court, Warwick Road, Solihull, B91 2AA	Detail planned agenda items. <ul style="list-style-type: none"> AUG Methodology AUGS Walkthrough

Action Table (as at 12 October 2018)

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
1001	12/10/18	2.0	Xoserve (FC) to liaise between the AUG, PAFA and UIG Taskforce to arrange joint meetings for suitable information exchange.	Xoserve (FC)	Pending
1002	12/10/18	2.0	Xoserve (FC) to raise the proposal of joint meetings with the AUG, PAFA and UIG Taskforce in order to discuss the possibility of formalising a co-ordination process under the UNC.	Xoserve (FC)	Pending
1003	12/10/18	2.0	Xoserve (FC) to investigate if atmospheric pressure data analysis could be added into the scope of the UIG Taskforce proposals.	Xoserve (FC)	Pending
1004	12/10/18	2.0	Xoserve (FC) to organise a joint AUGS and UIG Taskforce meeting to discuss the weather sensitivity issue and share knowledge.	Xoserve (FC)	Pending

Action Table (as at 12 October 2018)

Action Ref	Meeting Date	Minute Ref	Action	Owner	Status Update
1005	12/10/18	2.0	Xoserve (FC) to write to the Transporters to request permission for the sharing of the derivation of LDZ gas temperatures for the period 1996-2000.	Xoserve (FC)	Pending
1006	12/10/18	2.0	AUGE to advise Gazprom (SM) on sample sizes required for the collection of temperatures from AMR devices.	AUGE	Pending